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EXAMINER	
ENIN-OKUT, EDUE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,462	LEHMANN, MIRKO	
	Examiner	Art Unit	
	Edu E. Enin-Okut	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FUEL CELL WITH FUEL SUPPLY DEVICE AND METHOD FOR PRODUCING THE SAME

Detailed Action

1. The amendments filed on December 5, 2008 were received. Applicant has amended claims 1-25. Currently, claims 1-25 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action issued on August 5, 2008.

Drawings

3. The objection to the drawings is withdrawn in light of amendments made to the specification.

Specification

4. The objections to the disclosure are withdrawn in light of amendments made to the abstract and the specification.

Claim Rejections - 35 USC § 112

5. The rejection of claim 5 under 35 U.S.C. 112, second paragraph is withdrawn because claim 5 was amended.

Claim Rejections - 35 USC § 102

6. The rejection of claims 1-2, 4-5, 13-16 and 24 under 35 U.S.C. 102(b) as being anticipated by Keppeler (US 2002/0098399) are withdrawn because claims 1-2, 4-5, 13-16 and 24 were amended.

Claim Rejections - 35 USC § 103

7. The rejection of claims 3 and 8-12 under 35 U.S.C. 103(a) as being unpatentable over Keppeler in view of Plust et al. (US 3,338,746), Murkerjee (US 2002/0168560) and Uchida et al. (US 6,057,051) are withdrawn because claims 1, 3 and 8-12 were amended.

8. The rejection of claims 1, 6-7, 14 and 17 under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al. (US 2003/0003347) in view of Keppeler is maintained.

10. Claims 1-7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al. (US 2003/0003347) in view of Keppeler (US 2002/0098399). Additional supporting evidence provided by *Collins Dictionary of Computing*.

Regarding claims 1 and 4, D'Arrigo teaches a fuel cell for an electrical load circuit (an integrated fuel cell and integrated circuit device) includes a first and a second monocrystalline silicon substrate (semiconductor substrate) with a positive half-cell 1 and a negative half-cell 2 formed therein, respectively (Abstract; para. 12, 34-35; Fig. 1). Each half-cell includes a microporous catalytic electrode 3,4 (first and second electrodes, i.e., an anode and a cathode) permeable to a gas (Abstract; para. 36). An ion exchange membrane, or a film PEM, separates the two microporous catalytic electrodes (Abstract; para. 38). Each half-cell includes a passageway 7,8 (fuel and reactant delivery devices) for feeding the respective gas to the corresponding microporous catalytic electrode (Abstract; para. 36).

D'Arrigo does not expressly teach that the fuel is integrated into the material of at least one of the first electrode and an adjacent layer; or, that hydrogen is integrated into the fuel delivery device as fuel.

Keppeler teaches a fuel cell with an anode space 2 and cathode space 3 separated by a proton-conducting membrane 4 (para. 2, 23; claim 1; Fig. 1). The anode space 2 contains a hydride-forming substance by which hydrogen may be bound, or hydrogen-storing compound (Abstract; para. 11). The

fuel cell can operate and produce current without any additional supply of hydrogen or air by separating hydrogen from the anode side of the cell for subsequent reduction in the cathode space 2 (para. 28).

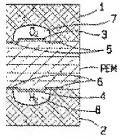
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a fuel storage material into the first electrode of the fuel cell of D'Arrigo, that material participating in fuel delivery to the cell, because Keppeler teaches that it can facilitate operation of the cell without providing fuel, such as hydrogen (see Keppeler, para. 13, 28).

Regarding claim 2, D'Arrigo, as modified by Keppeler, teaches that its fuel delivery device includes a contacted material that is treated with the fuel (see D'Arrigo, para. 36 and Keppeler, para. 24, 26).

Regarding claim 3, Keppeler teaches that suitable hydride-forming or hydrogen storing substances include metal or metal compounds, such as transition metals (para. 18). One would appreciate that palladium is a transition metal.

Regarding claim 5, D'Arrigo teaches that its microporous catalytic electrodes 3,4 (first and second electrodes, i.e., an anode and a cathode) are surrounded by a passageway 7,8 (fuel and reactant delivery devices) used to feed the respective gas to the corresponding electrode, as shown in Fig. 1 (para. 36; Fig. 1; see figure below).

A portion of Fig. 1 from D'Arrigo:



Regarding claim 6, D'Arrigo teaches that each half-cell of the fuel cell is connectable to an electrical load circuit (Abstract; para. 13).

Regarding claim 7, D'Arrigo teaches that a fuel cell can be at least partly integrated on a silicon chip containing an integrated circuit to be powered by the cell (Title; Abstract; para. 13, 15, 55). The resulting device is particularly suitable for use in power portable instruments and devices, and more particularly, systems that may be entirely integrated monolithically on silicon, such as mobile radios, monitoring instruments, portable computers, signaling devices, radio beacons and gas sensors integrated together with associated monitoring, testing and signaling circuitry formed on silicon (para. 12).

D'Arrigo does not expressly teach that its integrated circuit is a CMOS circuit.

One of ordinary skill in the art would readily appreciate that CMOS is a form of construction for integrated circuits that requires very low power inputs and is now being extensively used both for microprocessors and for memories (see "CMOS" from *Collins Dictionary of Computing*).

The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. However, one of ordinary skill in the art would readily appreciate that the electrical circuit of D'Arrigo can be constructed using CMOS methodology; thus, providing the required circuitry for a number of portable devices, as taught by D'Arrigo.

Regarding claims 14 and 16, D'Arrigo, as discussed above, teaches the limitations recited in this claim except for the integration of reactant (for generating a given amount of current) into the material of at least one of the second electrode and an adjacent layer; or, that oxygen is integrated into the reactant delivery device.

Keppeler also teaches that its fuel cell has a cathode space 3 containing an easily oxidizable compound (or substance) that, when the fuel cell is operated without any additional supply of hydrogen or air, leads to an reduction reaction in the cathode space which produces oxygen (Abstract; para. 27-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a reactant storage material into the second electrode of the fuel cell of D'Arrigo, that material

participating in reactant delivery to the cell, because Keppeler teaches that it can facilitate operation of the cell without providing reactant, such as oxygen (see Keppeler, para. 13, 28).

Regarding claim 15, this limitation has been addressed above with respect to claim 5.

Regarding claim 17, the limitations recited by this claim has been addressed above with respect to claims 6 and 7.

Regarding claim 24, D'Arrigo teaches a fabrication process for its fuel cell for an electrical load circuit (an integrated fuel cell and integrated circuit device) (para. 36-38, 40-57; Figs. 2-8) including coupling each of its half-cells directly onto the face of an ion exchange membrane or a film PEM (para. 38).

D'Arrigo and Keppeler do not expressly teach the deposition of a reactant delivery device as an integral part of the electrodes.

However, D'Arrigo does teach the deposition of thin, metallic films, composed of metals such as of gold, platinum, palladium, iridium, rhodium, ruthenium and alloys containing at least one of these metals, as part of the steps used in the formation of the electrodes for its half-cells (para. 40-42).

Thus, it would have been obvious to deposit the reactant storage material as an integral part of the electrode of the fuel cell of D'Arrigo, as modified by Keppeler discussed above, that material participating in reactant delivery to the cell, because D'Arrigo teaches that this means with which to create an electrode on a semiconductor substrate.

As to treating the material of the reactant delivery device with reactant, D'Arrigo teaches that each half-cell includes a passageway 7,8 (fuel and reactant delivery devices) for feeding the respective gas to the corresponding microporous catalytic electrode (Abstract; para. 36; Fig. 1), as discussed above.

11. Claims 8-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al. and Keppeler as applied to claims 1-7 and 14- 17, and further in view of Plust et al. (US 3,338,746).

D'Arrigo and Keppeler are applied and incorporated herein for the reasons above.

Regarding claims 8, 9, 18 and 19, D'Arrigo and Keppeler do not teach that a control device for controlling at least one of a current flow or an energy infeed; or, a control device to activate an electrochemical reaction between the electrodes and complete an electrical circuit through the electrodes.

Plust teaches a low temperature fuel cell with an oxygen accumulator electrode of nickel or silver oxide impregnated with palladium (Title; 4:1-7). If a demand for more power exists, switches 31 connect the accumulator electrodes 27, 28 with the electrodes 4, 5 used during normal operations to allow the full capacity of the accumulator electrodes to be added to the power provided by the fuel cell (1:46-48, 3:10-31; Fig. 1). The use of switches connecting accumulator electrodes with electrodes allows a fuel cell to deliver additional power periodically (1:46-48, 3:10-31).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a control device, with a switching mechanism, into the fuel cell of D'Arrigo, as modified by Keppeler, because Plust teaches that its incorporation allows for the ability to determine when the fuel and reactant delivery devices of the cell are engaged to begin providing power and allows for the completion of an electrical circuit, through its electrodes, with a load.

Regarding claims 10 and 20, Keppeler teaches that, when the gas supply via pipes 5 and 6 are interrupted, its fuel cell can be operated as a battery, and can produce current without any additional supply of hydrogen and air (para. 28).

D'Arrigo, Keppeler and Plust do not expressly teach that the control device includes a closed closure device, where the space around a reaction region of the reactant has no fuel or reactant, and where fuel or reactant from an external space enters the reaction region by opening the closure device.

However, one of ordinary skill in the art would appreciate that the interruption described by Keppeler can be initiated by the shutting off of a valve or the movement of a louver into the gas flow path.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a closed closure device into the fuel cell of D'Arrigo, as modified by Keppeler and Plust, because the device would provide additional control of the supply of fuel and reactant to the cell.

12. Claims 11 and 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al., Keppeler and Plust et al. as applied to claims 1-10 and 14-20 above, and further in view of Mukerjee et al. (US 2002/0168560).

D'Arrigo, Keppeler and Plust are applied and incorporated herein for the reasons above.

Regarding claims 11 and 21, D'Arrigo, Keppeler and Plust do not expressly teach that at least the fuel cell being designed as a replaceable module.

Mukerjee teaches that a modular configuration of fuel cells permits the arrangement of the cells to be easily adjusted to meet specific physical design criteria, such as, for example, a particular packaging arrangement (para. 49). In addition, the modules can be serviced or replaced individually, and making maintenance easier by avoiding the disassembly of a fuel cell assembly (para. 49).

One of ordinary skill in the art at the time of the invention would have found it obvious to make the fuel cell of D'Arrigo, as modified by Keppeler and Plust, a replaceable module because Mukerjee teaches that its eases the process of adjusting the arrangement of cells to the accommodate the size of the unit they are to be used and improves the ease of cell maintenance.

13. Claim 12 and 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al., Keppeler, Plust et al. and Mukerjee et al. as applied to claims 1-11 and 14-21 above, and further in view of Uchida et al. (US 6,057,051).

D'Arrigo, Keppeler, Plust and Mukerjee are applied and incorporated herein for the reasons above.

Regarding claims 12 and 22, D'Arrigo, Keppeler, Plust and Mukerjee do not expressly teach a fuel or reactant sensor that is positioned in at least one of the fuel or reactant delivery devices and the reaction region (including a region between protons and the reactant), the sensor being configured to determine an available amount of fuel or reactant.

Uchida teaches methods of detecting an operating time of the fuel cell including a method of using a pressure sensor for detecting an amount of the hydrogen remaining in a hydrogen storage unit, a method of detecting an accumulated flow rate of the hydrogen, a method of integrating an amount of the generated electricity to find an amount of reaction of the hydrogen to thereby calculate an amount of the remaining hydrogen, and a method of detecting an amount of the formed water by the above-mentioned method to calculate an amount of consumption of the hydrogen (7:39-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to place a fuel sensor in the fuel delivery device of D'Arrigo, as modified by Keppeler, Plust and Mukerjee, because Uchida teaches that the sensor allows the user of a device powered by the fuel cell to estimate the operating time the device has remaining (see Uchida, 7:39-40).

As to a reactant sensor, Uchida does not expressly teach a method with respect to the reactant available to a fuel cell. However, one of ordinary skill in the art would appreciate that the methods described by Uchida can be applied to the reactant (e.g., O_2, etc.) of a fuel cell.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to place a reactant sensor in the reactant delivery device of D'Arrigo, in the manner taught by Uchida to allow the user of a device powered by the fuel cell to estimate the operating time the device has remaining, as discussed above.

14. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al., Keppeler, Plust et al., Mukerjee et al., and Uchida et al. as applied to claims 1-12 and 14-22 above, and further in view of Anderten et al. (US 4,164,172).

D'Arrigo, Keppeler, Plust, Mukerjee and Uchida are applied and incorporated herein for the reasons above.

Regarding claim 23, D'Arrigo, Keppeler, Plust, Mukerjee and Uchida do not expressly teach a circuit for at least one of measuring the resistance of the fuel delivery device and of the reactant delivery device, and for determining the remaining amount of one of fuel and reactant.

Anderten teaches a fuel cell 36 connected to an oxygen control circuit 34, which employs a FET (field effect transistor) to measure the resistance in the circuit, that controls the amount of oxygen made available to the cell dependent upon the magnitude of the current produced by the cell (Abstract; 4:16-33, 4:45-58, 4:59-5:3, 5:21-36; Fig. 3).

One of ordinary skill in the art would appreciate that the methods described by Anderten can also be applied to the fuel (e.g., H_2, etc.) supplied to a fuel cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a circuit to measure the resistance of the fuel delivery device or the reactant delivery device of D'Arrigo, as modified by Keppeler, Plust, Mukerjee and Uchida, because Anderten teaches that it provides a means with which to control the amount of fuel or reactant made available to its fuel cell.

Regarding claim 25, D'Arrigo, Keppeler, Plust, Mukerjee and Uchida do not expressly teach a measuring device configured to determine at least one of a current and a voltage generated by reaction between the fuel and the reactant.

Anderten also teaches that the oxygen control circuit 36 discussed above responds to predetermined maximum and minimum voltage levels corresponding to maximum and minimum oxygen partial pressures of the air made available to the fuel cell 36 (4:59-3, 5:49-6:43). Also, as discussed above,

one of ordinary skill in the art would appreciate that above-described method of Anderten can also be applied to the fuel (e.g., H_2, etc.) supplied to the cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a measuring device in the fuel cell of D'Arrigo, as modified by Keppeler and Mukerjee, because Anderten teaches that it provides a means with which to control the amount of fuel and reactant made available to the cell.

Double Patenting

15. The rejection of claims 1-3, 14 and 16 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 6, 14 and 15 of U.S. Patent Application No. 11/074,594 is withdrawn due to amendments made to claims 1-3, 14 and 16.

16. Claims 1-3, 14 and 16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 6, 11, 12 and 14-16 of U.S. Patent No. 7,422,816.

Although the conflicting claims are not identical, they are not patentably distinct from each other because all the elements of the instant application claims 1-3, 14 and 16 are to be found in US 7,422,816 claims 1, 4, 6, 11, 12 and 14-16, as the instant application claims 1-3, 14 and 16 fully encompasses Application No. 11/074,594 claims 1, 4, 6, 11, 12 and 14-16 and therefore anticipate the claims.

Response to Arguments

17. Applicant's arguments filed December 5, 2008 have been fully considered but they are not persuasive.

18. As to Applicant's arguments regarding the Keppeler reference (see p. 45):

"... The Applicants respectfully disagree with this characterization of the Keppeler reference [i.e., the characterization of the reference in the first Office Action].

... Keppeler does not define either anode space or cathode space within the specification. Therefore, the terms anode space and cathode space are to be interpreted according to their plain and ordinary meanings. Space is defined as "a place available for a particular purpose." (Dictionary.com, "space"). Thus, according to a fair and proper reading of Keppeler, the hydrogen-containing gas is supplied into a space that contains an anode and the oxygen is supplied to a space that contains a cathode, where the purpose of the "space" is to provide set bounds for the anode and the cathode.

A skilled person would not modify the system of D'Arrigo based upon the teachings of Keppeler. D'Arrigo relates to a micro silicon fuel cell, whereas Keppeler discloses a fuel cell for us in a motor vehicle as a drive source. If D'Arrigo was modified to include the anode space as disclosed in Keppeler, then the resultant device would no longer work for the intended purpose of D7Arrigo, since the resultant device would no longer be capable of being located on a silicon chip. Combining the dissimilar teachings of D'Arrigo and Keppeler would not result in a predictable outcome because the teaching of Keppeler has no reasonable relationship to semiconductor devices, in more particularly, to fuel cell devices to be integrated into a silicon semiconductor as recited in claim 1. ..."

It should be noted at the outset that "[t]he use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including non-preferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *Upsher-Smith Labs. v. Pamlab*, LLC, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005). See MPEP 2123 (I).

As to Applicant's discussion of "space" with respect to the Keppeler reference, it appears that Applicant fails to appreciate the reference is being applied for its use of fuel and reactant storing materials in a fuel cell application and, in light of this, Applicant's contentions with respect to "space" are unclear.

Further, it appears that Applicant also fails to appreciate that Keppeler discusses the use of its fuel cell in a vehicle as an *exemplary* use (see para. 5, 14, 29). The abstract and the claims of Keppeler are directed to a fuel cell and to a method of operating a fuel cell with no mention of a vehicle (see Abstract, para. 2, claims 1-10). It should also be noted that the para. 33 of the Keppeler reference specifically recites the following: "The foregoing disclosure has been set forth merely to illustrate the invention and is not intended to be limiting. Since modifications of the disclosed embodiments incorporating the spirit and substance of the invention may occur to persons skilled in the art, the invention should be construed to include everything within the scope of the appended claims and equivalents thereof."

Thus, one of ordinary skill in the art at the time of the instant invention would readily appreciate how the teachings of the Keppeler reference could be applied as described in the rejections presented above.

19. As to the remainder of Applicant's arguments, they have been considered but are now moot in view of the new grounds of rejection.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence / Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Edu E. Enin-Okut** whose telephone number is **571-270-3075**. The examiner can normally be reached on Monday - Thursday, 7 a.m. - 3 p.m. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edu E. Enin-Okut/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795